Japanning Tools - Two commentaries on a recurring subject for which information seems hard to come by:

by Todd Hughes & Sean Cullen

Plane Bodies By Todd Hughes

I have re-Japanned many tools, most of them for a friend who would bring me planes already stripped - I believe he just used a paint remover on them. The ones I stripped didn't have much Japanning left to remove, and I just used a wire wheel and small scrapers. It is very important to do a good job of removing all the old finish. I baked every one in the kitchen Gas oven and never had a any problems, nor did I notice any strong odors. More important, my wife never complained.

A good finish is requires using a good hair brush with the Japanning warm [room temperature at least] and laying on coats thin enough that it will flow a little. Not runny but not like tar. I normally put on two thin coats, let them dry, and then put the article in the oven on "Bake" in two cycles at around 200 and 300 deg.

Japanning is as easy as painting a plane, and of course it is the original finish, so why use paint? I want a tool that looks "right", Moreover, I think where most people mess up is to Japan an old beat-up plane by giving it a 100% bright new finish, but just leave it at that. The result looks fake. I have seen many planes being sold in this condition at tool shows by dealers. It's amazing how the plane could retain all it's "original" bright Japanning yet have rough wood, a blade half used up, and lots of wear on the sole. Hmmm? I tone the Japanning back some so that it doesn't look so new, and depending on the condition of the plane, maybe even take about 10% or so of it off. Rubbing the Japanning down with a fine polishing compound works well for this. I can tell you straight that if done properly, it will not be evident that a plane has been re-Japanned. I have a small Victor plane in my collection that I have shown to many collectors, and not one ever doubted the finish was anything but original.

Japanning Recipe By Sean Cullen:

I am both curious and frugal, and had some rusty tools kicking about. That led to this smelly endeavor. Yes, I've used a lot of words below for something quite simple. You want the short version? Add turpentine, boiled linseed oil, and asphaltum together. Paint it on. Bake it. Done.

Cautionary Notes:

1. **DON'T SUE ME:** It is your responsibility to know both the risks and proper use of the materials you are using. Read the fine print on the packages. Wear protective gear, such as rubber gloves, to prevent unnecessary exposure. Always use proper ventilation. Do not contaminate your home, family or the environment through improper use or disposal of materials. Remember, I'm no expert...use your own judgment as to the suitability, safety, and accuracy of the methods and information given herein.
2. **DON'T RUIN YOUR STUFF:** Know the value of your tool before monkeying around with it. Whether you use them or collect them, tools that have survived 100+ years deserve to live on with their original finishes & features intact for future generations to enjoy. Be gentle and do nothing to compromise or alter the original finishes and materials on such survivors. However, if the tool is common, or was otherwise destined for the scrap heap, don't worry about it.
3. **TAKE THIS STUFF WITH A GRAIN OF SALT:** These instructions are NOT the result of years of refinement, adjustments, and careful analysis. I am not a chemist. I've only japanned a few things using these methods, and don't know how the results compare with old japanning in thickness or quality. You may be able to improve upon these instructions by altering the proportions of ingredients, baking procedure, etc. The baking time and temperature is based on an old toaster oven that may not have been heating properly. I strongly recommend that you run several tests on scrap iron to learn how thin to apply the paint and to check proper baking times and temperatures for your oven.

Ingredients/Materials:

1. Boiled Linseed Oil. See your hardware store. Read the label…this stuff is not benign.
2. Turpentine. Again, see your local hardware store. Again, read the can.
3. Asphaltum. This is the mystery ingredient that's not too hard to find once you know what to look for. There are many kinds of asphalt, both natural and those that are byproducts of oil refinement. However, you do NOT want driveway sealer, roofing tar, etc. The asphaltum you want is also known as Gilsonite (a trade name), asphaltite, and uintaite. It is a natural, resinous hydrocarbon mined from western United States. It is brittle, a dark brown color when crushed into a powder, and

melts about 300-400F, depending upon the grade. Because it's used in etching and lithography, you can find it at larger art supply stores. They usually know it as "powdered asphaltum." Some pyrotechnic supply companies apparently also sell it. Some gun enthusiasts that make their own bullets/shells also use it. I found mine online from http://www.rembrandtgraphicarts.com, in the intaglio supplies section. They sell it in "lump" and "powder" form for $2.25 and $2.40 per pound respectively. However, the "lump" form is just a more granular, lumpiepowder. Next time, I'd buy only 1 lb of the "powder", instead of the 2 pounds that came ina tightly sealed metal can. Unless I start japanning daily, even just 1 lb will last me a lifetime. Again, research the hazards of this stuff…you don't want to be creating lots dust to breathe or to accidentally ignite.

4. Measuring scoop or similar, glass container with tight lid (small jelly jars are good), and Ed notercial Japanning supplies try: stirring rod.

Editor note: For commercial japanning supplies try: www.libertyonthehudson.com/pontypool.htm

Cold Mix Japanning Recipe:

1. Add 2 parts linseed oil, 5 parts turpentine, and 3 parts asphaltum powder to your glass jar jar. I used an old soup spoon for measuring and it made about 1.5" worth of mix in a small jelly jar. A little of this mixture goes a long way. You may also want to experimewith these proportions to improve or alter the mixture.

2. Stir the mixture a bit and cover.

3. it dissolve for 2-3 days. Stir or shake occasionally. You'll notice the liquid gets progressively darker and more viscous. Pretty soon, after the jar is tipped, you won't be able to see through the mix dripping down the jar's insides, and it will take several minutes for the glass to begin clearing.
4. You may still have a bit of asphaltum on the jar's bottom that doesn't dissolve. Don't worry. It'll stay there and not on your brush when you start painting.
5. Test the mixture's thickness. Dip a nail or other piece of metal in the jar. Take it out and lean it against something so it's fairly vertical. Let the nail dry overnight.
6. Check your test. Did it dry to being slightly tacky? Did the mixture stay put or did most of the mix drip off the nail's vertical surfaces? If the mixture dripped too much, it may still be too thin and not enough asphaltum is yet dissolved.

Cold Mix Application:

1. Do NOT stir before using. That'll only put any un-dissolved lumps into your brush. By this point, the turpentine has probably reached its capacity for dissolving, and stirring isn't going to help.
2. Use a good quality brush with soft-bristles, not one of those cheap throwaway glue application ones.
3. Make sure your iron object is clean, dry and rust free (electrolysis is a good method). Wipe the object with turpentine to remove any oils, etc. If there is any remaining japanning on your object, make sure that it's not loose. If it's thick, consider sanding down the edges of it or remove it entirely.
4. Prop the object up on a board so that you can paint as much as possible, and so that you can move it as needed during drying.
5. Dip your brush, and paint away. I've found that a thin coat is best. Don't expect this japanning to fill dings or hide surface imperfections. Brush it out thinner than you'd do for a regular paint job. A little paint on your brush should go a long way.
6. Let it dry a few hours. Make sure it's in a well-ventilated space or outdoors.
7. If there's a second side to be painted, do that now and let it dry for a few more hours.

8. Apply a second coat of paint. Again, don't put it on thickly. Don't worry about having too little because even a coat that seems too thin and brown when wet turns out opaque black after baking. This time, your paint won't spread as far. Don't over brush, or you'll start dissolving the first coat. Clean your brush with turpentine.
9. After drying overnight, the surface should now be relatively dry and only slightly tacky. You'll now need a toaster oven and well ventilated space (or outdoors).
10. Prop up the iron object so the painted surfaces don't contact the oven tray. Place it on an unpainted side, or support it on its machined surfaces, screw holes, etc.

11. Bake 1 hour at 450F (CAUTION: my toaster oven may be screwy. That's why you should do some test pieces to see what temperature and time will produce a hard finish. Most recipes recommend baking at no more than 400F. Nathan Lindsey had a website about re-japanning a plane, in which he described using an incremental method that calls for a higher temperature with each baking cycle). If you put the paint on too thick, it's now going to start dripping or slumping. I've had some minor slump into corners, and those thicker areas will require that the piece be baked longer in order to cure. Do what you can to fix any slump, leave it, or start over. Following a baking cycle of increasing temperatures may also help to prevent slump, but I haven't experimented with that. A differently proportioned mixture might help too. Your test pieces will help you to learn how much paint should be applied. The few pieces I've baked have all ended up with a uniform, but not thick looking finish. Rough metal spots, dents, etc. still telegraph through the coating. The only spots that seem a wee bit thin on a plane frame that I did are some sharp edges at a few screw holes. I simply haven't experimented with this enough to know how to create a thicker finish, so if that's what you want, buy pre-made japanning mix.
12. Let the metal cool, and you're done. Your fingernail should NOT be able to scratch the piece's surface.

Background Notes: This recipe is based on internet research. I found about 4-5 different descriptions of japanning, and broke them each down into the proportions of ingredients used. Some of the archaic ones called for litharge and other highly toxic stuff. I mostly based mine on one site containing detailed information on Ford Model T Japan paints.

Most recipes called for first melting the asphaltum, either with the oil, or melting it and then adding it to the oil and thinners. I wasn't too keen on that, since all of these materials are flammable. However, I did try melting a small batch of asphaltum in a tin can, using a propane torch in my backyard. It melted to a shiny black goo, but I couldn't keep even and consistent heat on it. I tried adding the oil, but the asphaltum already had begun to solidify. I tried re-heating the mix, but only

ended up setting the stuff on fire. After also adding the turpentine, I finally ended up with an asphaltum paint, but it was very slow to dry.

I next tried melting the asphaltum in a short tin can in the toaster oven. I could only get it to a sticky goo, never more liquid. I don't know if I needed more heat, or if that's as good as it gets. I added the oil first, but the goo was quickly solidifying as it cooled. I then dumped out the oil, added a bit of turpentine, and tried heating again. The lump of asphaltum was slow to melt and dissolve. I ended up eventually adding the full measure of turpentine, all the while continually heating, but could never get all of the material to dissolve. I gave up, let it cool a bit, and added the oil. The final result was a very thick paint. I think the heat drove off a lot of the solvent. The process was also very messy and dangerous. Needless to say, both of these methods also made lots of noxious fumes, so working outside is a must.

Perhaps the old recipes called for heating because they were working with chunks of asphaltum, rather than powder, as well as raw linseed oil? Though heating is quicker than waiting a few days, and gave a final creamy mixture without lumps on the bottom, it was difficult to control the quality and results. Plus, it is very hazardous. If you have a heating plate and a space outdoors to try, it might be worth experimenting with more, but be careful. Avoid using open flames as heat. In any event, asphaltum powder dissolves in turpentine relatively quickly, and you don't have to worry about losing driers, causing fires, and fumes. I didn't want to risk my neck any more so I stuck with the "cold mix method" described above. Is this recipe as good as the original used on tools and will it have longevity? I have no idea.

If you notice some horrendous error in my information, drop me a line at elmoleaf@netzero.com. If you want to keep experimenting and improve upon this stuff, please go right ahead, but put your results on the web for others.